

# Lecithin

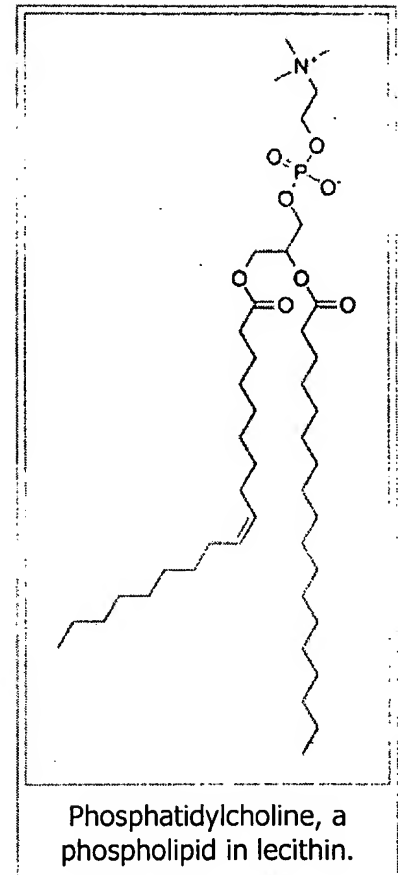
From Wikipedia, the free encyclopedia

**Lecithin** is mostly a mixture of glycolipids, triglycerides, and phospholipids (e.g. phosphatidylcholine, phosphatidylethanolamine, and phosphatidylinositol). However, in biochemistry, *lecithin* is usually used as a synonym for pure phosphatidylcholine, a phospholipid which is the major component of a phosphatide fraction which may be isolated from either egg yolk (in Greek lekithos—λεκιθος) or soy beans from which it is mechanically or chemically extracted using hexane.

Lecithin is commercially available in high purity as a food supplement & for medical uses.

## Contents

- 1 In biology
- 2 As a food additive
  - 2.1 Compatibility with special diets
- 3 See also
- 4 References
- 5 External links



## In biology

Nervous and circulatory lecithin is produced by the liver if the diet is adequate. It is needed by every cell in the body and is a key building block of cell membranes; without it, they would harden. Lecithin protects cells from oxidation.

## As a food additive

Lecithin is regarded as a well-tolerated and non-toxic surfactant. It is approved by the United States Food and Drug Administration for human consumption with the status "Generally Recognized As Safe". Lecithin is an integral part of cell membranes, and can be totally metabolized, so it is virtually non-toxic to humans. Other emulsifiers can only be excreted via the kidneys.

Lecithin is used commercially in substances requiring a natural emulsifier and/or lubricant, from pharmaceuticals to protective coverings. For example, lecithin is the emulsifier that keeps cocoa and cocoa butter in a candy bar from separating.

There are no studies that show soy-derived lecithin has significant effects on cholesterol and

triglyceride levels in the blood.

Commercial lecithin, as used by food manufacturers, is a mixture of phospholipids in oil. The lecithin is obtained by degumming the extracted oil of the seeds. The lecithin is a mixture of various phospholipids, and the composition depends on the origin of the lecithin. A major source of lecithin is soybean oil. Because of the EU-requirement to declare additions of allergens in foods, a gradual shift to other sources of lecithin, e.g., sunflower oil, is taking place.

The main phospholipids in lecithin from soya and sunflower are phosphatidyl choline, phosphatidyl inositol, phosphatidyl ethanolamine and phosphatidic acid. They are often abbreviated to PC, PI, PE, and PA respectively. To modify the performance of lecithin, i.e., to make it suitable for the product to which it is added, it may be hydrolysed enzymatically. In hydrolysed lecithins, a portion of the phospholipids have one fatty acid removed by phospholipase. Such phospholipids are called lyso-phospholipids. The most commonly used phospholipase is phospholipase A2, which removes the fatty acid at the sn-2 position.

In margarines, especially those containing high levels of fat (>75%), lecithin is added as an 'anti-spattering' agent: it helps in suppressing spattering during shallow frying. Lecithin is admitted by the EU as a food additive, designated by E number E322.

Lecithins may also be modified by a process called fractionation. During this process, lecithin is mixed with an alcohol, usually ethanol. Some phospholipids have a good solubility in ethanol (e.g. phosphatidylcholine), while most other phospholipids do not dissolve well in ethanol. The ethanol is separated from the lecithin sludge, after which the ethanol is removed by evaporation, to obtain a phosphatidylcholine-enriched lecithin fraction.

## Compatibility with special diets

Egg-derived lecithin may be a concern for those following some specialized diets. Egg lecithin is not a concern for those on low cholesterol diets, but if not purified before being used as a food ingredient, it could significantly raise the overall cholesterol content of the food.

For observant Jews, under Kashrut it is considered *pareve*, neutral, e.g., may be mixed with both meat and dairy. For observant Muslims, under Sharia, lecithin from plants, egg yolks or Halal animals is allowed, otherwise it is prohibited. There is no general agreement among vegetarians concerning egg-derived lecithin, but as it is animal-derived, vegans choose not to consume it.

## See also

- Biochemistry
- Choline
- Lipid
- Lipid bilayer

## References

## External links

- Introduction to Lecithin ([http://www2.chemie.uni-erlangen.de/services/dissonline/data/dissertation/Christoph\\_Wabel/html/Chapter1.html](http://www2.chemie.uni-erlangen.de/services/dissonline/data/dissertation/Christoph_Wabel/html/Chapter1.html)) (University of Erlangen)
- Soy Lecithin: From Sludge to Profit (<http://www.westonaprice.org/soy/lecithin.html>) - article about the lecithin industry
- Phosphatidylcholine info ([http://www.pdrhealth.com/drug\\_info/nmdrugprofiles/nutsupdrugs/pho\\_0288.shtml](http://www.pdrhealth.com/drug_info/nmdrugprofiles/nutsupdrugs/pho_0288.shtml))

Retrieved from "<http://en.wikipedia.org/wiki/Lecithin>"

Categories: Food emulsifiers | Phospholipids | Soy products | Surfactants

- 
- This page was last modified 03:13, 13 March 2007.
  - All text is available under the terms of the GNU Free Documentation License. (See **Copyrights** for details.) Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc., a US-registered 501(c)(3) tax-deductible nonprofit charity.